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Canadian Public Health Journal

Devoted to the Practice of
PREVENTIVE MEDICINE

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Papworth: The Parent Village Settlement for Tuberculosis*

SIR HUMPHRY ROLLESTON, BART., G.C.V.O., K.C.B., M.D.

President of Papworth Village Settlement

Emeritus Regius Professor of Physic, University of Cambridge, England

THE system of dealing with tuberculosis on broad lines which is often spoken of by the name of the village, Papworth, which it has made so widely known and which is located twelve miles from Cambridge, is a comparatively recent development. It is an economic continuation or supplement of the sanatorium method, and an effective after-cure.

Limitations of Sanatoria

About the necessary limitations of sanatoria, a few words may first be said in order to explain the reasons for the Papworth idea. When, towards the end of the last century, sanatoria for the tuberculous poor became numerous in Great Britain, they were intended for early cases so that the disease might, by residence in healthful circumstances and under medical supervision, be arrested and the patients so far improved in health that they could return to their work. Experience has definitely shown, however, that sanatoria beds do not contain more than a third, if so many, of really early cases, because the working man does not give up until the early stage has passed. For this there are weighty reasons, especially economic factors: the working man shrinks from giving up his job, on account of his dependents, the natural dislike of branding himself as tuberculous, and the difficulty of obtaining work after an absence of three or four months. To quote Sir James Kingston Fowler's *obiter dictum*, "The working man cannot afford the time to be an early case." As few of them will admit that they are early cases, this stage is seldom seen by medical men. What is often called an early case is really one recently recognized. In fact, when seen for the first time a tuberculous patient generally is suffering from an impaired resistance to the disease which is usually more advanced than is thought. A course of sanatorium treatment retards the course of the disease and

*Presented at the Twenty-Second Annual Meeting of the Canadian Public Health Association, Saint John, N.B., June, 1933.

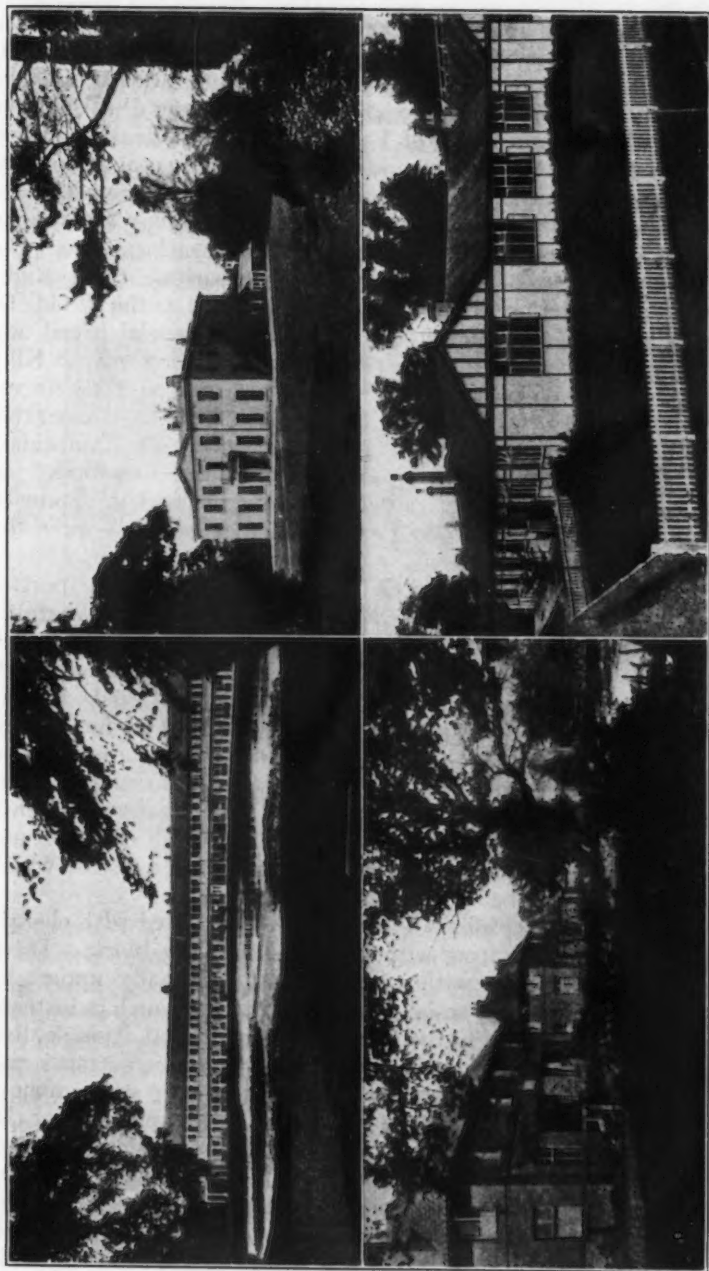
educates the patient in what Sir Andrew Clark (1826-93), who was the subject of tuberculosis when a young physician but recovered, rather grandiloquently called "the laws of physiological righteousness". Unfortunately, the lessons of sanatorium education are difficult to carry out when the man returns to his home and the circumstances in which he contracted tuberculosis, to compete with men in the full vigour of health. Too often the ex-patient takes up his former work, if indeed he is successful in obtaining a job, before he is really fit to withstand such adverse conditions, and sooner or later a relapse occurs. Recently, R. C. Wingfield made the following statements* from his experience as medical superintendent of the Brompton Sanatorium, Frimley:

"Any given batch of patients who are put through routine treatment, which includes the sanatorium, although they may make a splendid immediate response to treatment, yet if their after-histories are examined we find a small percentage alive and well, another percentage incapacitated or dying, and a large percentage dead. . . . We must admit that our routine treatment and sanatorium treatment, whatever may be their immediate results, have, *per se*, no specific permanent curative effect on the disease. They may prolong life for a few years in the majority of cases—often useless years—but they afford no protection against relapse and extension of disease."

History of Papworth Village Settlement

In 1916, Sir Pendrill Varrier-Jones, who was knighted in 1931, was Tuberculosis Officer at Cambridge, where he had carried out research work on clinical thermometry with the late Sir German Sims Woodhead (1855-1921), professor of pathology in the University of Cambridge, who was subsequently a keen supporter of the village settlement scheme for the tuberculous poor in its early stages when it urgently required such help; his memory, incidentally, is kept green at Papworth by a memorial in the form of a laboratory for clinical pathology and research. Varrier-Jones soon became painfully conscious of the incongruity and the futility of giving advice which poor patients cannot possibly carry out, such as to "get a light job in the open air and have three good nourishing meals a day". This led him to make, with Miss K. L. Borne, the present matron of Papworth, a start in a very small way on the lines now so fully developed at Papworth. At Bourn, not far from Papworth, they began with one patient. Now they look after some thousand persons, of whom about 400 are actual patients. The remainder are ex-patients and live either in the men's or women's hostels, if single; or with their wives and families in the hundred and six model cottages. Of about one hundred children, not one has developed tuberculosis, a tribute to the healthful conditions of the village settlement. In 1918, with the generous help of the late Right Honourable Sir Ernest Cassel, Papworth Hall, a country house in beautiful

**Br. Med. J.*, 1933, 1, 179.



ABOVE, *Left*—THE NEW HOSPITAL FOR WOMEN. *Right*—THE SOUTH AND EAST FRONTS OF PAPWORTH HALL, SHOWING HOSPITAL WARDS.
 BELOW, *Left*—RECENTLY ERECTED COTTAGES IN THE VILLAGE. *Right*—ST. JOHN'S HOSTEL.

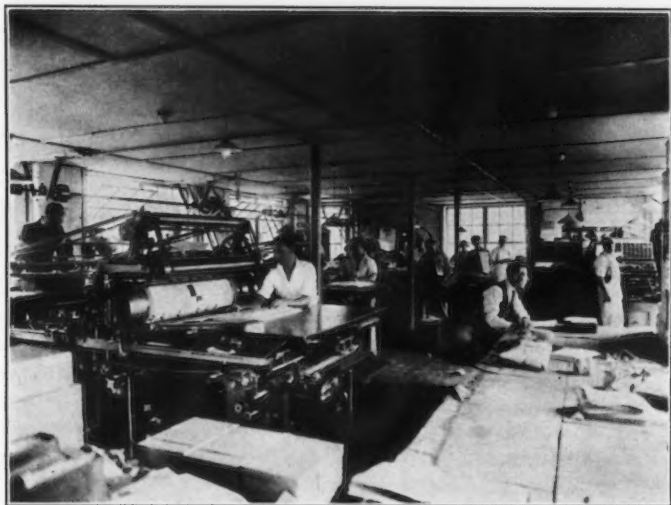
surroundings of sixteen acres, was bought. Since then progressive expansion has gone on apace; for example, the number of acres is now three hundred and fifty. Besides Sir German Sims Woodhead, the early helpers of Papworth included the Right Honourable Sir Clifford Allbutt (1836-1925), Regius Professor of Physic in the University of Cambridge, who was president of Papworth until his death and collaborated with Sims Woodhead and Varrier-Jones in papers on the village settlement for the tuberculous. In 1925 these were expanded into book form,—*Papworth: Administrative and Economic Problems in Tuberculosis*. This gave very serious cause for uneasiness about the efficacy of tuberculosis sanatoria and dispensaries. The Right Honourable Sir Frederick Milner (1849-1931), known as the "Soldiers' and Sailors' Friend", was a whole-hearted and influential friend and was constantly at Papworth as its chairman; he interested the King and Queen, who are both patrons of Papworth, as are also the Princess Royal and the Earl of Harewood. Last year the Right Honourable Stanley Baldwin, the Chancellor of the University of Cambridge, broadcast an extremely successful appeal on behalf of Papworth. In a recent novel, "Smith", Warwick Deeping, a medical graduate of Cambridge, included a sketch of Papworth and generously gave the royalties to the village settlement.

Papworth, as Caesar said of Gaul, is divided into three parts: (i) *the hospital* for advanced cases. No tuberculous patients, whatever the form or stage of the disease or wherever they come from, are regarded as inadmissible. The men's hospital, previously in the old hall with 68 beds, is just about to occupy a new building with 86 beds (the Bernhard Baron Memorial Hospital). The new hospital for women (the Princess Hospital), opened in July, 1932, by the Duchess of York, contains 62 beds and is beautifully situated. The separation of those severely ill must have a distinctly beneficial, though negative, influence on those in the sanatorium by removing the depressing effect of witnessing the downward path of those in the late stages of a disease which when taken in time can be so satisfactorily arrested.

(ii) *The sanatorium* consists of about 90 châteaux fitted with electric light and bells communicating with the administrative block. These patients, as they improve with complete rest, gradually undertake purposeful work and may be trained for one of the Papworth industries. In time they are discharged to the village settlement, and, if single, live in one of the hostels, or, if married, may rent one of the cottages and have wife and family there, work for longer hours, earn more money, and become self-supporting, self-respecting and happy members of the community. These settlers are under medical supervision and any sign of illness is detected and dealt with at once, and changes in the hours of work made. They thus lead a protected life in healthful surroundings and are free from the circumstances of slum life, the uphill competition with normal workers, and the haunting fear of losing their

occupation should they relapse. The psychological effect of this haven of security exerts a most important influence. In this connection it may be mentioned that Dr. H. Banister, lecturer on experimental psychology in the University of Cambridge, conducts a psychological clinic which is of great service to patients recently admitted to the hospital or sanatorium. A large village hall, in which there are frequent entertainments, is attached to the settlement.

(iii) The third and the specially characteristic part of Papworth consists of the *village settlement and industries*. There are more than a hundred families in the village settlement who, together with those in the hostels, work and earn a livelihood in the various industries, namely,



PRINTING SHOP.

carpentry, building, cabinet-making, trunk and suitcase making, upholstery, printing, ticket-writing, boot-repairing and poultry-farming. The building of new premises, such as the hostels, the new hospitals already mentioned, model cottages and workshops, by the inhabitants of the settlement is a considerable economy. The thriving state of the industries is shown by the large annual turnover, the sales for 1932 amounting to £72,115. The annual total has regularly increased even during these last years of financial stringency.

The charges for poor patients, paid by the local authorities and others, as for tuberculous sanatoria and approved by the Ministry of Health, are 53s. 6d. a week for men, and 50 shillings a week for women. Private patients are taken at a weekly charge of 3½ to 6 guineas.

Two new developments may be briefly mentioned. Nurses who

have contracted tuberculosis elsewhere are taken in, and, if fit, do some nursing at Papworth and receive payment for this. This is not only a service to them, but obviates their struggling on as nurses and thereby the risk that they may spread infection among private patients. On September 28, 1932, in the presence of the Minister of Health, the Right Honourable Sir Edward Hilton Young, "Borne House", designed by the matron as the home of Papworth sisters and nurses who are past work, was opened and named after her.

The clinical work is divided, under the direction of Sir Pendrill Varrier-Jones and Dr. L. B. Stott, M.C., into the general care of the inhabitants of the village settlement and the special therapeutic clinics



LEATHER GOODS DEPARTMENT.

for the treatment of the tuberculous. The special forms of treatment are, as far as possible, divided into units under the care of individual medical officers. Thus one medical officer is in charge of the ultra-violet light unit for the treatment of surgical tuberculosis and lupus, and another for the collapse therapy unit, which includes artificial pneumothorax, oleo-thorax, and the supervision of phrenic evulsion and thoracoplasty cases, the two latter procedures being carried out at general hospitals. Similar units are organized for dental, refraction, and psychological work, and the surgical unit for bone, joint, and spinal tuberculosis is grouped with the orthopaedic supervision of the colonized cripples. The ear, nose and throat work is supervised by the surgeon to that department at Addenbrooke's Hospital, Cambridge, where selected cases are seen. There is a large consulting staff,

among them the Right Honourable Lord Dawson of Penn, Sir James Kingston Fowler, Sir A. Garrod, Sir Henry Gauvain, Dr. L. S. Burrell, and, as consulting radiologist, A. E. Barclay, who, being lecturer on that subject in the University of Cambridge, is close at hand and also takes an active interest in the general management of Papworth. That incomparable orthopaedic surgeon and great-hearted man, Sir Robert Jones (1858-1933) was on the consulting staff up to the time of his death.

Similar village settlements have been established at Barrowmore Hall, Great Barrow, near Chester; Preston Hall, near Maidstone in Kent, and in the Irish Free State at Peamount, near Dublin, largely due to the initiation of the Marchioness of Aberdeen and Temair, when Vice-Reine of Ireland, and recently benefited, like other hospitals of the Free State, by the proceeds of the Irish sweepstakes. In the United States of America the Potts Memorial Hospital at Livingston, Columbia County, New York, which opened early in 1926, appears to have the same objectives and methods. The French Government, as a result of the efforts of Professor Léon Bernard of Paris, who visited Papworth in 1922, has recently opened a similar and even larger village settlement at Salagnac.

Sir Pendrill Varrier-Jones originated and carefully developed the Papworth ideal on sound economic, psychological and medical considerations. To do this, a genius for organization of a kind rare, especially among medical men, is an essential factor; the phenomenal success of the village settlement at Papworth in the comparatively short time of less than twenty years is ample proof of its founder's organizing ability, foresight and management. On occasions when extensions or improvements appeared to be desirable, he has taken his courage in both hands and started the work before there were funds available in the bank to meet the necessary expenditure; but events have always justified the venture. That his judgment and methods are widely recognized as outstanding is shown by the action of those responsible for somewhat similar institutions in calling him in, and by his resulting appointment as honorary Medical Director of the Enham village centre for ex-service men, and of the Peamount village settlement. In September, 1932, he was appointed president of a new international body, formed for the special and intensive study of after-care in tuberculosis, which is affiliated with the "Union Internationale contre la Tuberculose".

How to Reduce the Cancer Mortality*

JOSEPH COLT BLOODGOOD, M.D.

The Johns Hopkins Hospital, Baltimore, Maryland

THE basis of hope to-day in the prevention and possible permanent cure of cancer is the agreement among the great majority of cancer students that *cancer is a local disease in the beginning*. Cancer never begins in a healthy spot. The normal cells in a spot first become abnormal, and this collection of abnormal cells produces a local condition which, when situated on the skin or in the oral cavity, can be seen or felt. When situated within the body accessible to illumination, these little local spots are as visible as one on the skin. The laryngoscope, the oesophagoscope, the proctoscope, the cystoscope and now the bronchoscope illuminate for inspection with the naked eye many heretofore hidden areas of the body. It is important that all these areas can be inspected without danger or difficulty by a specially trained technician in the course of an ordinary physical examination. The X-ray allows us, with and without special dyes or opaque solutions swallowed by mouth or injected per rectum, to get a picture of many of the internal viscera, the abnormalities of which due to disease are quite apparent by this method of examination.

Early Examination Essential

There is a period of time which varies from weeks to years between the formation of the abnormal spot in which the cells are abnormal but not cancerous and that in which the cells have changed to cancer. The vast majority of students agree that the chief cause of the change in any spot of the body from the normal to the abnormal cell is chronic irritation of some kind, and in tissue like bone even a single injury may bring about the change. The same factor or factors that change the cells from normal to abnormal may change the abnormal to cancer. Up to the present time the statements of a minority of cancer students favouring a specific factor other than chronic irritation have not been accepted.

We have sufficient evidence to-day that cancer of the skin, of the mucous membrane of the oral cavity, including the pharynx and nasopharynx, and cancer of the cervix in mothers are preventable diseases. The education, so far, has entirely changed the relative frequency of abnormal spots and of cancer in these regions. When the skin of individuals and the oral cavity are inspected at proper intervals from birth as part of a physical examination, there will be discovered the little local lesions which are abnormal, though not cancerous. In this group, cancer can be prevented by the proper treatment of such local conditions. In those few instances in which cancer develops in the local spot between the periodic examinations, it will be in such an early stage that it can be completely eradicated by surgery or irradiation with X-rays or radium, before the cells have metastasized throughout the body.

*Abstract of Address presented before the Canadian Public Health Association at the Twenty-second Annual Meeting, Saint John, N.B., June, 1933.

When mothers are educated to seek examination of the cervix within six months or one year after the birth of a child and at proper intervals thereafter, with the rarest exceptions all the abnormal spots on the cervix will be discovered and eradicated before malignancy has developed. In a few instances in which malignancy does develop, the probability of a cure after proper radium treatment will be almost one hundred per cent.

My personal studies of cancer of the cervix in mothers, of the skin and of the mouth, have collected an immense amount of verified evidence to confirm the statement that cancer never begins in a healthy spot and that at first there is always a definite spot or local growth of abnormal cells that are not yet cancer, and that this spot, when situated where it can be seen or felt by the individual or brought to view in a periodic precautionary examination, will lead to the prevention and the largest possibility of a cure of cancer.

When the local lesion which precedes cancer is internal and inaccessible to the ordinary routine physical examination, we must wait for symptoms. In those cases in which the abnormal spot produces symptoms before cancer develops, there is the same possibility and hope for prevention or the best chance of a permanent cure. As a rule, even after the spot has become malignant, the local growth will produce definite symptoms in the earliest stages of cancer when there is still a large possibility of a cure. This brings up the second definite statement in regard to cancer which everyone should know: *The prevention and cure of cancer depend upon the duration of the known symptoms and the variety of the cancer.* Of the former everyone has some control; of the latter, no one has any control.

It is essential for every human being to know that it is within his or her reach, if properly informed, to reduce the risk of death from cancer. This is the chief hope. If they have had the good fortune to develop in the spot what is called a low-grade or chronic cancer, there is still hope of a large percentage of cures, even when there is delay. Every human being has within himself some mechanism which protects him, to a certain degree, from all diseases. This is called resistance or immunity and it explains why some people may have, in some spot or organ of the body, a malignant tumor and yet may live ten, fifteen or even twenty-five years and ultimately die of some other disease, and during this time may suffer very little or not at all. But this immunity which resists cancer itself and delays the change of the abnormal to the malignant growth is so variable and so uncertain that it is too big a risk for any individual to take to-day, when it is unnecessary to depend upon it. We know we have greater immunity from smallpox, diphtheria, typhoid fever; nevertheless, all informed and intelligent human beings prefer to take the protection of vaccination, antitoxin or protective serum. The selection of a dentist or physician *when one is well* and the visiting of them *while one is well* to take the periodic physical examination and to learn of the precautionary measures for the prevention and cure of all disease, is one of the greatest advances in modern times. The public health officials may be looked upon as the essential profession to take the leadership with the medical and dental professions to bring this about.

Early Treatment and Prevention Dependent on the Education of the Public

We now know that precautionary measures and the examinations which will lead to the prevention or cure of cancer of the skin, oral cavity or cervix of mothers are simply a question of educating the people and the professions of dentistry and medicine to make this as successful as giving the people clean water and clean milk and protecting children from diphtheria by the toxoid injection before they are one year old. The health departments feel the responsibility of a continuous educational effort to protect the people from polluted water or milk and to educate parents to protect their children from diphtheria. How far should the health departments take the leadership with the medical and dental professions in these precautionary measures and examinations for the prevention and cure of cancer of the skin, the oral cavity and the cervix of mothers? The statements that a beautiful woman never gets cancer of the face, because she pays attention at once to the first skin blemish, and that women are teaching men how to smoke with very little risk of cancer, because they keep their teeth clean and see their dentist frequently, have proved of tremendous value in influencing the press to carry the message to the public. The value of frequent messages of this kind in the daily press is tremendously emphasized when we compare the frequency, to-day, of fully developed cancer of the cervix in mothers with the frequency of fully developed cancer of the skin and of the mouth. The last two are being rapidly eradicated by newspaper publicity, while as yet there is very little improvement in cancer of the cervix in mothers. The press seems to object to statements about this organ and no one as yet has found the proper language which will not only convey this protective message to women, but which will be accepted by the press. For this reason, to-day in Canada and the United States less than ten per cent of the mothers are so protected. There should be no difficulty at this moment of protecting more than ninety per cent.

Here is a great opportunity for the public health officials and the daily press. It is my opinion that these two agencies can be of the greatest help to the medical and dental professions in making their services more available and more effective in the protection against cancer of the skin, mouth and cervix of mothers. *Members of the medical and dental professions have two opportunities of aiding the public: firstly, in their personal relations with their own patients as individuals or families; secondly, in co-operation as members of medical or dental organizations with the public health departments in attracting and influencing the public press to make their educational effort possible.* The best results are possible only when there is an organized, co-operative effort between the medical and dental professions with the health departments and the press. Ultimately, when the people understand it, they will demand this protection and the results will reach the maximum possibility.

In concluding, I wish to emphasize in this short paper the tremendous value of the verified studies which have been going on in the Surgical Pathological Laboratory of the Johns Hopkins Hospital and University on cancer of the skin, the oral cavity and the cervix, for the entire cancer problem. We know that to-day we have a sufficient knowledge of the causes and the

local growth of abnormal spots in different parts of the body that ultimately may become cancer, to teach the public and the medical and dental professions those precautionary measures and examinations which, if followed, will offer prevention of malignant disease and, if this fails, the largest opportunity for a permanent cure.

SUMMARY

Cancer never begins in a healthy spot. There is always something first in a spot that is not cancer, but yet abnormal. This abnormal spot must be looked upon as a new growth or a tumor, but the cells at first, though abnormal, are not yet malignant or cancerous. The usual verified cause of this abnormal spot not yet cancer is chronic inflammation, single or repeated injury.

The cure of this spot will prevent cancer. In some instances it may be cured by removal of the cause. In other instances not only the cause, but the spot itself must be removed.

The specific cause of cancer has not been discovered. There is no preventive serum.

The chief protection against cancer is the same as for heart disease—periodic precautionary examinations and measures by a member of the medical or dental profession selected while one is well. This member may be an individual, or a member of a group, a clinic, a hospital, or the health department. The most important factor is that he must have proper training to make the examinations and to follow out the precautionary measures. The difficulties of meeting all the possibilities for the prevention and cure of cancer and heart disease are so great that often it is necessary that a number of specialists must join with the general practitioner in completing these examinations with the precautionary measures or special treatment.

We have sufficient knowledge to-day and a sufficient number of trained individuals in the two professions to accomplish this prevention and to increase the possibilities of a cure of the fully developed cancer.

The full-time health officer is in a position to initiate the educational effort, to bring the press and the medical and dental professions together, so that the people and these professions may receive this consensus of opinion of the cancer students throughout the civilized world in regard to the precautionary measures, the complete general and special examinations and the treatment which offers most for the prevention and cure of cancer. Everyone should know that this possibility is here. We need no new discoveries to place cancer among the insignificant diseases.

Cancer should be displaced from the second cause of death to an inconspicuous position in the mortality statistics. Cancer should be a disease that no one should fear. To-day, if every individual would give the medical and dental professions an opportunity from birth to old age to attempt to protect them from heart disease and cancer, there is no question that life would be a little longer, but, much more important than this, life would be much more agreeable, with much less suffering. In addition, there would be a tremendous reduction in the high cost of medical care.

Saskatchewan's Programme for Cancer Control

R. O. DAVISON, M.D.

Deputy Chairman, The Saskatchewan Cancer Commission, Regina

SASKATCHEWAN was the first of the Canadian provinces to formulate and place in operation a province-wide programme for the control and treatment of cancer.

In 1929 the Saskatchewan Medical Association appointed a committee to make certain inquiries into the facilities then available in the province for the treatment of cancer and, as a result of the committee's report making certain recommendations to the Minister of Public Health, a Cancer Services Branch of the Department of Public Health was formed provisionally to make a further investigation. As a result of this investigation it was assumed that approximately 1,500 active cases of cancer existed in the province, a large majority of which were not receiving the most modern and efficient treatment, due largely to a lack of co-ordination of existing facilities and the lack of an adequate supply of radium.

THE APPOINTMENT OF THE COMMISSION

After careful consideration of these reports, the Minister of Health presented to the Legislative Assembly in January, 1930, a Bill which duly became law in the following May as the Saskatchewan Cancer Commission Act. This Act provided for the appointment of one, two or three members to administer its wide powers. The Commission subsequently appointed consists of the Honourable F. D. Munroe, M.D., C.M., Minister of Public Health, chairman; R. O. Davison, M.D.(Tor.), deputy chairman; and David Low, M.D., C.M., commissioner.

The policies of the Commission under the powers conferred upon it by the Act are as follows:

The establishment of centralized consultative diagnostic and treatment clinics with modern facilities for the early detection and treatment of malignancy and its complications.

Centralization and control of radium treatment in the two chief cities by expert radio-therapists.

Supplying the facilities of the clinics to all residents.

Following up thoroughly all cases which pass through the clinics and effecting re-examinations to detect and treat subsequent developments of the disease in each patient.

Collecting complete details of all cases of cancer known to exist in the province, the facts being obtained from private medical practitioners and hospitals under the provision of the Act which makes cancer a notifiable disease.

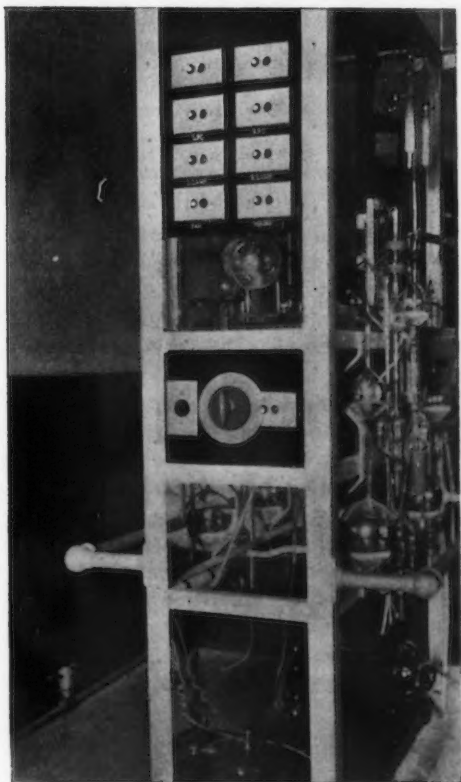
The enactment of regulations governing the clinics.

Instituting educational work among the profession and the public in order to make the programme effective.

SUPPLYING RADIUM

Following the passing of the Bill, steps were taken to obtain a supply of radium, and in due course a total of 1,680.6 milligrammes was purchased, contained in 558 needles, tubes and plaques, with 504 milligrammes in bulk.

While preparations were proceeding for the opening of the clinics, data were being collected from various American centres concerning the construction and operation of emanation plants. This work was undertaken for the Commission by Professor E. L. Harrington, of the Department of Physics, University of Saskatchewan, at which centre it was decided to construct the Commission's emanation plant. The construction of the plant progressed under the supervision of Professor Harrington as consulting physicist and came into operation in September, 1931. The plant is of a semi-automatic duplex type and has a daily production of from 75 to 85 millicuries of radon from its radium supply of 504 milligrammes. The production of radon at the emanation plant is conducted by a specially trained technician



VIEW OF EMANATION PLANT, SHOWING CONTROLS

under the supervision of the consulting physicist and clinics obtain their requirements on requisition. Each clinic has well over one-half gramme of radium in approximately 280 forms and sizes of platinum containers. These are kept in specially constructed lead safes in the custody of an official at each hospital.

OPENING OF CLINICS

The preliminary arrangements having been made, the Commission

decided to open consultative diagnostic and treatment clinics in two main centres, north and south; namely, Regina and Saskatoon. In December, 1931, the first clinic was opened at the Regina General Hospital and two weeks later the Saskatoon clinic was opened in the City Hospital.

Each clinic has a consulting staff consisting of an internist (the director), a radiologist and a surgeon, and consulting specialists on call, also an auxiliary staff consisting of the clinic secretary, internes and the nursing staff, in addition to which the pathologist of each hospital is available for consultations. The organization of the Commission in its entirety is seen in the accompanying chart.

Procedure for Admittance to Clinics

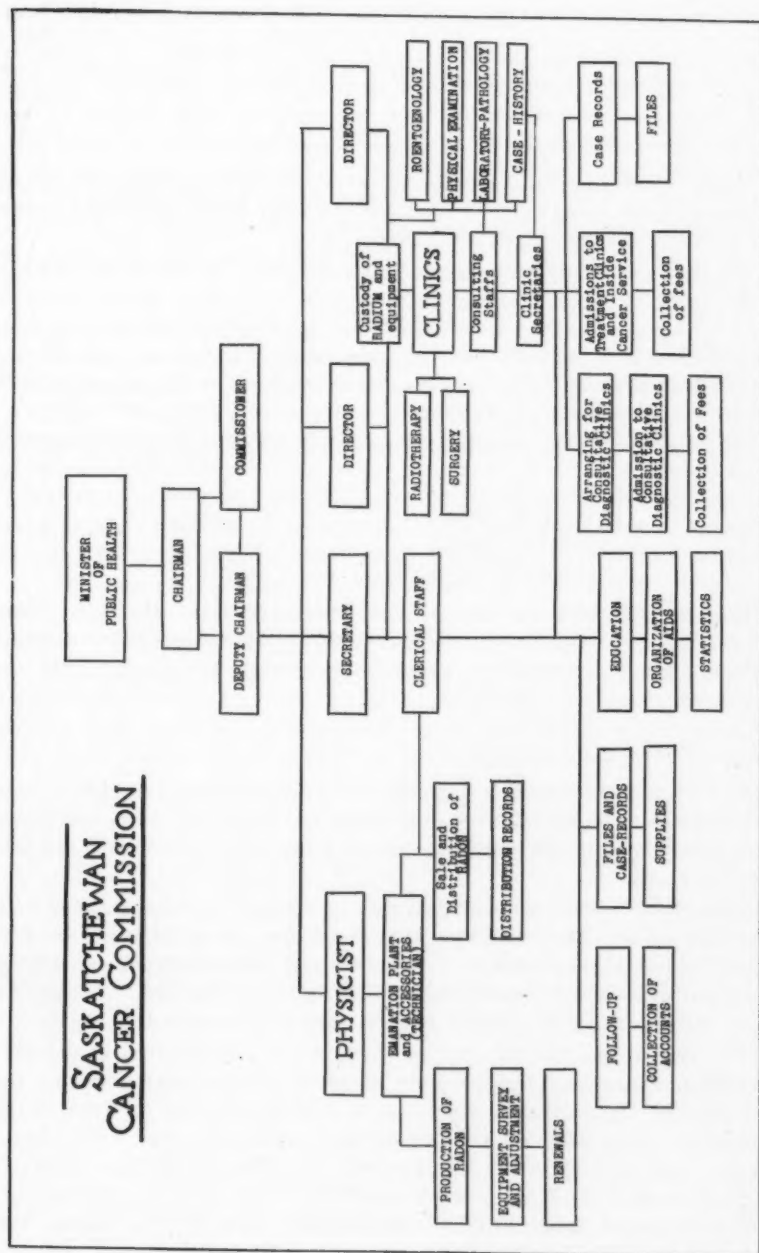
Clinics must provide a consultative diagnostic service and be fully equipped for treatment.

All cases must first be referred to the clinic by the patient's physician, with the diagnosis of cancer or suspected cancer. The patient's physician is expected, when possible, to attend all consultations; if unable to do so, he is kept in touch with his patient by correspondence and advised of the clinic's diagnosis, recommended treatment and progress. The physician makes application for the patient to attend the clinic and provides a case history. The clinic secretary prepares the patient's admission form, arranges for the payment of the consultative diagnosis fee, and forwards the patient's file to the clinic director. The director decides if the patient should be an in-patient or an out-patient and arranges for his examination, including laboratory and pathological investigation. The director then returns the complete case history to the secretary and the patient attends the consultative *diagnostic clinic*. These duties are a function of the clinic office. The patient is supplied in the clinic with an identification card and a form, "Admission to Treatment Clinic". A copy of the findings of the diagnostic clinic, together with recommendations, is forwarded to the patient's physician. Treatment at the clinic is entirely dependent on the patient's decision regarding the recommendations of the clinic and the advice of his physician.

The organization of the *treatment clinic* provides similar facilities for admitting patients. The clinic secretary completes the hospital admission form, forwarding a copy to the hospital, and sends the case history to the director. The clinic secretary and the hospital admission office arrange for any advance payments. Fees for diagnosis and treatment are nominal, the consultative diagnostic fee being ten dollars and the fees for radium treatment twenty, twenty-five and fifty dollars, according to the form of cancer treated. Indigent patients are provided for under powers conferred by the Act and therefore no case is denied the entire facilities of the clinics.

Services Rendered in 1932

Five hundred patients were admitted to both clinics during the first year



ORGANIZATION CHART, SASKATCHEWAN CANCER COMMISSION

of operation, three hundred being at Regina. These were diagnosed as follows:

Cancer.....	343
Pre-cancer conditions.....	35
Not diagnosed at time.....	17
Not malignant.....	105

With the information derived from twelve months' operation, the former estimate of 1,500 living cases of cancer in existence in the province has now been amended to approximately 2,000.

Nearly two million milligramme hours of radium treatment was administered during the year. This is equal to a continuous use of the available supply (in containers) for over eighty days, and does not include treatment with radium emanation. From this it may readily be seen that the demand for the Commission's radium supply is constant, and, at the present rate of increase, will soon reach its maximum.

Services rendered by the various hospital departments to the five hundred patients were:

Deep X-ray therapy.....	655 hours
Laboratory tests.....	1,573
Diagnostic X-ray series.....	450

In accordance with a co-operative arrangement between the Commission and the hospitals in which clinics are operating, deep X-ray therapy is supplied to all patients at a rate which is practically its cost, and consequently one which is very low.

"Follow-up" Procedure

As previously indicated, it was considered to be of paramount importance for all patients to be kept in close and continuous touch with the Commission clinics after diagnosis and first treatment, and especially so in cancer and pre-cancerous cases.

With this object in view, all patients are strongly advised to assist, and, at the time of their first discharge from the clinics, are given a definite date by the clinic secretary on which to return for re-examination. A reminder of this appointment is sent to each patient shortly before this date. In the case of non-appearance, further letters are sent asking for reasons.

The system has proved very satisfactory and has resulted in valuable information concerning the progress of most of the living cases on the clinic records. Some idea of the effect is indicated by the fact that 1,108 examinations were made on the 500 patients during the year. This figure does not imply that all of the 500 returned for review, as 105 cases were not cancer and most of these patients did not return. The remaining 400 patients therefore averaged nearly three re-examinations, some of these having two and others as many as eight during the year. In addition, each patient's case is discussed and examinations made during the course of treatment.

CANCER NOTIFIABLE

Action has now been taken to implement the provisions of the Act in regard to the notification of cancer cases, and all private medical practitioners and hospitals in Saskatchewan are required to report any cases of cancer upon which they attend, or which they admit. The hospitals are required to report their cases monthly, and the private practitioners forthwith on special forms provided. These reports require detail as to the complete diagnosis of the form of cancer, its first symptoms and when these were first observed, and finally the treatment given.

GENERAL

At the time of writing, the Commission has admitted 940 patients to both clinics during a period of twenty-one months. Of this total approximately 170 have died; about 200, most of whom were non-cancerous, have been lost touch with; and the remainder are either actively or passively within the scope of the Commission's service.

In common with the experiences of other authorities undertaking similar work, it is the Commission's conclusion that a large proportion of the patients arrive at the clinics in an advanced stage; too far advanced, in fact, for successful employment of treatment. As an example, of the first five hundred cases admitted 26.9 per cent were considered operable, but only palliative treatment could be administered, and 17.7 per cent were considered entirely inoperable.

The present facilities are now being utilized to a high degree and will undoubtedly be taxed to their utmost, as indicated by the total admittances to date and considering the steadily increasing number of patients coming within the field of the Commission's constant supervision.

In August, 1933, the Commission held a cancer conference in Regina, coincident with the convention of the Saskatchewan Medical Association. During this time public meetings were held and articles were distributed to the press of the province for publication.

Educational work is now engaging the attention of the Commission, having in view both the public and the medical profession, as the experiences of the past two years emphasize the known fact that under present conditions early diagnosis and early efficient treatment must be the corner-stone of any successful programme of cancer control.

Rural School Sanitation*

W. C. MILLAR, A.R.SAN.I.

Chief Sanitary Inspector, Division of Industrial Hygiene, Ontario Department of Health

FOR the past three years the Ontario Department of Health has been engaged in an endeavour to raise the standard of sanitation in the unorganized territory of the province. This territory is situated between Nipissing and James Bay, west through Patricia to the Manitoba boundary, south to the United States and east along the north shores of the Great Lakes, back to Nipissing. It embraces about 250,000 square miles. Until three years ago no public health worker other than the public health nurse, who has always been the pioneer health worker in northern Ontario, ever visited any of the six hundred schools that are scattered all over this vast area.

In the unorganized territory the Provincial Sanitary Inspectors have, under the Public Health Act, all the powers of local boards of health. Three years ago the sanitary supervision of the rural schools in this territory was given to them. The initial survey of the schools disclosed very poor sanitation. The sources of water supply were doubtful streams and badly constructed wells. A common drinking cup and an open water-pail (into which the fingers of most of the children were dipped each day) were usually in evidence. Very few of the schools had wash basins and in almost all the towel was community property. The window lighting was poor and there was no ventilating system other than open windows. Few schools had facilities for drying the children's wraps. The privies were dilapidated, badly lighted and evil-smelling.

Wells and Water Supplies

Present economic conditions are much the same in the unorganized territory as elsewhere, and it was with this thought in mind that the campaign was commenced for the improvement of sanitary conditions in the schools of the territory. Water supplies first received attention. Advice was given for the improvement of badly constructed wells and the discontinuing of the use of doubtful supplies from running streams was urged.

In my public health experience I have found that about 90 per cent of well-pollution is due to faulty construction of the top covering of the well, most of the polluting matter being brought to the well on the shoes of water-carriers and the feet of animals and washed down through cracks in the top covering. These were the common faults found by the inspectors at the unorganized district common school wells.

When inspecting wells, some medical health officers and sanitary inspectors take samples for analysis from every well, irrespective of what the sanitary survey discloses. In my opinion, the taking of samples from a well which the sanitary survey condemns is unnecessary and only wastes the time of the

*Presented at the Nineteenth Annual Meeting of the Ontario Health Officers' Association, Toronto, May, 1933.

inspector and of the Provincial Laboratories' staff. If the analysis is positive, it only bears out the survey; if negative, it gives a false sense of security and does not alter the fact that, in its present condition, the well should be condemned. The proper step to take would be to correct the insanitary conditions disclosed by the survey. The well should be given a treatment of bleaching powder, and pumped out twenty-four hours later. Then, if doubt remains, a series of samples should be taken.

Obtaining Support

The insanitary conditions described above are no doubt similar to those found in many of the rural schools in the organized territory. It may be advisable, therefore, to outline the method which has been most successful in having about 25 per cent of the schools in the unorganized territory carry out the inspectors' recommendations. The trustees were notified, through their secretaries, of the insanitary conditions in their schools, and an opportunity of attending a Board meeting was requested. At the meeting the inspector explained, in terms which his listeners could understand, the danger from badly constructed wells, common drinking-cups and towels, and from other insanitary conditions that existed in that particular school. In many cases, he remained over night to supervise the work necessary for the correction of the conditions. The question of environment and its effect on the mental attitude of the child was not gone into, although this important subject undoubtedly should be given the attention it deserves when insanitary school conditions are studied from a health point of view. In my opinion, a school child tutored under the insanitary conditions found in so many of our rural schools starts life with a very real handicap.

Recommendations were made that the open water pails be replaced with earthenware water containers with draw-off taps. Where, for financial reasons, paper cups could not be provided, each family group of children was urged to bring its own drinking cup. Each group was also advised to bring a family towel. Plans for a standard type of well ventilated, well lighted, fly-proof privy were drawn up and recommended. Recommendations were also made for the location of windows, blackboards, and seating in relation to prevention of eye strain. The provision of a drying-room for the children's wraps was urged.

A Standard Ventilating System

As a result of the success attained in the first two years of inspection, attention was directed to the question of a standard ventilating system. The writer personally visited one hundred schools in northern Ontario and discussed ventilation with their teachers. Without exception they stressed the necessity for some system of ventilation during the five months of winter weather which prevail in the north. In the summer months the necessary air movement and temperature regulations were easily attained by the opening of doors. It was during the sub-zero weather, however, that the want of ventilation was so badly felt. When every door and window was tightly

closed against the extreme cold and the big box stove was charged to the limit, it was almost impossible to hold the attention of the children and it was, in fact, only with the greatest difficulty that they themselves could give the necessary concentration to their work, owing to the lassitude which the conditions brought about.

Some of the most progressive of the teachers, who had taken temperature records, informed me that the temperature was sometimes 85° to 90° F. at the seats nearest the jacketless stove and around 50° F. at those farthest from it. I am not qualified to express an opinion regarding the harmful effects which might be caused by spending six hours each day in this vitiated, overheated atmosphere and then going out into the sub-zero weather, but anyone can realize that it must lower a child's resistance and render him more susceptible to disease.

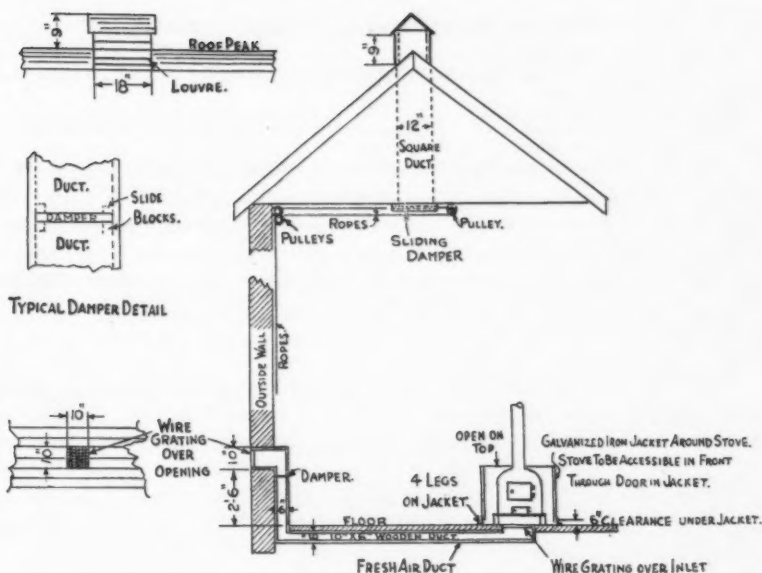
To the average mind, the words "ventilating system" suggest elaborate piping and a considerable outlay of money. It can safely be said, however, that in the ventilating system which we have devised for the unorganized territory schools we have the simplest, cheapest and most efficient system possible under the circumstances. The system, as shown in the reproduced blue print (a copy of which is in every unorganized district school), brings fresh air into the building through a wooden duct entering three feet above ground level. From there it runs down below the floor, with its outlet immediately beneath the stove, which has a jacket heater set up on legs six inches above the floor level. A twelve-inch roof outlet completes the system. Both inlet and outlet have dampers for regulating purposes.

In actual practice, the system brings in a current of cold air which, on striking the hot stove, is warmed and rises and circulates through the room towards the roof outlet. In addition to providing air movement necessary for proper ventilation, it also helps in heat circulation and regulation. The stove should be located near the front of the room, with the roof outlet at the other end.

Undoubtedly this system could be improved upon by having the stove set in the middle of the room and an outlet installed in each of the four corners of the ceiling, these outlets to be connected to the main outlet. This, however, would double the cost of installation and make it, in most cases, prohibitive. In addition to providing pure, fresh air, the system provides the two things most necessary to ventilation, namely, air movement and regulation of temperature. Special provision for the adding of moisture to the air has not been made, as it was considered that the question of humidity was not of practical importance under these conditions.

Cost

The cost of forty of these systems which have been installed has been carefully estimated and it has been found that the average cost per system, including the jacket heater, amounts to thirty dollars. It can be installed by any rough carpenter, as it is made entirely of lumber, with the exception of the jacket heater, which is of sheet-iron lined with asbestos. The system



TENTATIVE VENTILATION PLAN FOR SCHOOLS IN UNORGANIZED TERRITORY ISSUED BY
SANITARY INSPECTION BRANCH, DIVISION OF INDUSTRIAL HYGIENE,
ONTARIO DEPARTMENT OF HEALTH.

SPECIFICATIONS FOR INSTALLATION AND OPERATION OF SCHOOL VENTILATION SYSTEM

Air Inlet: Air inlet duct to be run from a point 2'6" from the ground level in through outside wall with inlet opening to room directly under middle of stove. Damper to be installed as shown in plan at convenient point on inside wall. A small mesh screen to be placed on inside opening and outside inlet.

Roof Louvre Ventilator: Roof ventilator to be connected to a 12" duct run from ceiling level. This roof ventilator to be installed at a point in roof farthest away from stove site. A damper regulated by four pulleys and two pull ropes to be installed in ceiling.

Stove: Stove to have movable jacket, this to be constructed of galvanized iron supported on iron or wooden supports, the inside to be covered with sheet asbestos; a space of 6" to be left between the bottom of jacket and floor.

Air inlet duct, roof duct and ventilator to be constructed of wood.

OPERATION OF VENTILATION SYSTEM

Wall and ceiling dampers to be shut during cold weather when school classes are over each day and re-opened when the necessary temperature of from 65° F. to 70° F. has been reached next day when school re-opens and the heating system is functioning.

A thermometer placed mid-way between stove and outside walls at a height of about 5 feet should be in each school room.

has been endorsed by the Ontario Department of Education which, through its inspectors, has given the provincial sanitary inspectors the very finest co-operation.

Sanitary Inspector's Report

The following reproduction of an inspector's report gives an idea of what has been accomplished in some of the northern schools.

ANNUAL INSPECTION REPORT (GOLD PINES SCHOOL, SEPTEMBER, 1932)

Average School Attendance: 19.

Construction: Log construction, chinked with mortar, measuring 30 x 20 x 8 walls; inside sheeted with building paper.

Site: Located on sandy ridge.

Lighting: Six windows on south wall, two on west wall and one skylight, a total of 91.48 square feet, which is one sixth of the floor space.

Ventilation: Windows and Department of Health standard ventilation system.

Heating: Box stove.

Latrines: Department of Health standard, fly-proof construction.

Water supply: From Lac Seul, stored in earthenware containers. Paper cups kept in sanitary glass container.

Washing facilities: Two basins, and family towels.

Blackboards and Desks: On west and north walls. These appear to be so located as to prevent eye strain. Desks are of standard pattern, ensuring correct posture.

General: A thermometer is provided. The entire building evidences great care on the part of a small, poor community.

From the ideal conditions disclosed by this report, one might think that it covered some school in southern Ontario; as a matter of fact, Goldpines is one of the new mining towns in far northern Patricia, up towards Hudson's Bay. We are well pleased with the success that has been achieved in the past three years and expect that in another few years all the schools in the unorganized territory will have raised the standard of their sanitary conditions to one in keeping with their educational system.

The Health Education Value of the School

In addition to the 600 schools to which I have referred, there are 6,500 rural schools in the province. One wonders how many of these have a sanitary standard in keeping with Ontario's high standard of education. (Most of those which I have seen in the organized territory of the north have not.) Everyone whose duties have taken him into the rural districts knows the poor standard of sanitation which prevails in many of the towns and villages where, yearly, outbreaks of intestinal disease occur in the summer months, with a high mortality rate among bottle-fed babies. He knows the great difficulty he has in trying to impress upon most of the people in those districts that insanitary outside privies, insanitary milk, poor water supplies and the house-fly are responsible for most of the outbreaks. But can we expect anything better in the rural districts, as long as the insanitary conditions which I have described are permitted to exist in so many of their schools? What can be expected in after life from the child who, in its most impressionable years, has, in its study of the "three R's", worked under insanitary conditions and practised insanitary habits forced upon it by the unsanitary conditions at the school which it has attended? What can be expected of the future home? From what source is its ideal of proper sanitation to come?

In my opinion, the providing of a proper standard of sanitation in the rural schools of Ontario, where children will be able to practise sanitary habits, will go far towards raising the standard of sanitation in the rural villages and towns which, year after year, present such a trying problem to the medical officer of health and other public health workers.

The Treatment of Vulvo-Vaginitis in Children

S. C. PETERSON, M.D.

Venereologist, St. Boniface and St. Roch's Hospitals, Winnipeg, Manitoba

VENEREAL disease is more common among children of the poorer classes and is rare in better class families. It may become epidemic in institutions, such as hospitals, schools and orphanages. In Glasgow, David Watson reports his experience that from 2 to 12 per cent of the female children coming to hospitals for routine medical treatment show evidence of gonococcal infection. In the London Hospital, Kidd and Simpson found that about 8 per cent of young female patients were infected, while a total of over 200 known cases were found in the area covered by the venereal disease scheme in Edinburgh during the past seven years.

GENERAL CONSIDERATIONS

The vulvar and vaginal mucous surface in the young child is covered with delicate columnar epithelium and is therefore susceptible to the gonococcus. At puberty this columnar epithelium becomes squamous in character, and as a result of this histological change the adult vulva and vagina are rarely primarily infected by the gonococcus. In addition, in the child the secretions from the vulva and vagina lack the bactericidal qualities which the secretions from these same areas have in the adult. The Bartholinian duct and gland are not developed in children and are rarely involved in the infective process.

The urethra is involved in practically every acute case. The rectum is infected in a small percentage of cases. The uterus in the child has a conformation quite different from that of the adult. One writer describes it as being "all neck". The cervix is out of proportion to the size of the body of the uterus and in a considerable proportion of cases becomes infected. The infection may extend upwards to the Fallopian tubes and to the pelvic peritoneum.

Every case of vulvar or vaginal discharge in a child must be regarded as gonococcal until it is proved with certainty that the gonococcus is not present in the secretions and that there is some other definite cause. It is probable that at least 80 per cent of all inflammations of the vulva and vagina are due to gonococci, either alone or in combination with other organisms; while of the acute purulent cases probably 99 per cent are due to gonococcal infection.

The signs and symptoms of the disease and its diagnosis are too well known and apparent to require restatement. The prognosis must take into account the prolonged treatment necessary and the tendency to relapse and also the necessity for a prolonged period of observation after the cessation of treatment. There does not seem to be any evidence that these cases are followed by dysmenorrhoea or sterility in later life, nor that it recurs at puberty.

The source of the infected case should be investigated and measures

taken to prevent its spread. It is seldom advisable to try to treat these patients at home or at an out-patient clinic. In child welfare institutions and in children's hospitals it would be a useful precaution to make a careful examination of the vulvar and vaginal secretions in every case on admission.

Several writers have recommended that vulvo-vaginitis be made a notifiable disease and that all cases, when discovered, should be transferred to a special hospital for treatment. This was recognized by the authorities here and arrangements were made to carry it out.

METHOD OF TREATMENT

In October, 1931, the Sisters of Charity set apart and equipped one floor of St. Roch's Hospital for the treatment of gonorrhoea in children. Every physician and hospital in Manitoba was circularized by the Department of Health and Public Welfare, advising them of the desirability of sending cases of vulvo-vaginitis to St. Roch's Hospital for treatment. By Christmas the wards were nearly all occupied by patients ranging in age from infants to fifteen years.

During the year from October to October there were 40 admissions to this department. Of these, 35 were definitely positive for gonococci. The average age of these children was $4\frac{1}{2}$ years. The average time on treatment was 74 days; the shortest time required, 43 days; and the longest duration of treatment, 113 days. An average of 2.8 weeks was allowed for observation after the cessation of treatment. Most of these cases were recent infections but many of them had been under treatment for periods up to 14 months before admission.

In the treatment of the children a regular schedule was followed, but due observation was made of their individual and particular requirements. The various members of the medical staff were called in to look after their diet and general condition and to attend to any ailments that might arise during their stay in hospital. The children had school classes, singing classes, games, hours for play outside and inside, and regular periods for rest in bed during the day. They received a hot cleansing bath daily and all wore cotton pants which were changed and boiled every day.

The children were treated daily according to the following general schedule:

- (1) A 1 in 1,000 solution of acriflavine was injected into the urethra until the urine was repeatedly pus-free.
- (2) The entire vulvar mucous membrane was painted with 2 per cent solution of mercurochrome.
- (3) The vagina was filled with an ointment of 1 per cent mercurochrome in equal parts of vaseline and lanoline. A light pad and a T bandage were applied to retain the ointment.
- (4) A hot sitz bath of 15 or 20 minutes' duration was given daily.
- (5) The pelvis was baked in carbon lamp appliances from half an hour to an hour daily.
- (6) Potassium permanganate douches (1 in 10,000) were given when the discharge was excessively purulent or offensive.
- (7) Silver nitrate was applied to the urethra and vagina twice a week after the first month's treatment.
- (8) The hymen was incised when necessary for efficient drainage.
- (9) The cervix was inspected through an endoscope and when found to be affected was treated with acriflavine 2 per cent, mercurochrome 5 per cent or silver nitrate 2-5 per cent.

- (10) After a month's routine treatment, gonococcus mixed vaccine was given in four injections, as follows: first dose, .15 cc.; on the third day, .20 cc.; on the sixth day, .25 cc.; on the tenth day, .30 cc.
- (11) Cod liver oil was given three times a day during the winter months.

The bacteriological examinations were made personally by Dr. Prendergast, pathologist at St. Boniface. Smears of the urethra, vagina and rectum were taken on admission and periodically during the treatment. When three or four smears were negative for pus as well as for gram negative cocci, the children were put under observation for two or three weeks, during which time they were examined every other day until discharged from the hospital.

On discharge they were instructed to report to the venereal clinic at St. Boniface Hospital for examination every two weeks for two or three months. No arthritis developed in any of these cases. There was not a single relapse in this series and none of the children became "pelvis conscious".

DISCUSSION

In searching the medical library, one is struck by the scarcity of reports of series of vulvo-vaginitis cases in the literature. A summary of three published reports* and of our results is presented herewith.

	Number of cases	Average time on treatment	Shortest time on treatment	Longest time on treatment
Davis Lees, Royal Infirmary, Edinburgh, 1928.	87	210 days including observation		
B. Burkley Sharpe, Hospital for Sick Children, Great Ormond Street, London, 1930.	40	146 days		12 months
	27	170 days		13½ months
Dr. Kathleen Brown, O.P.D. Clinic, Guy's Hospital, London, 1925-1929.	46	469 days	119 days	204 weeks
St. Roch's Hospital, Children's V.D. Dept., St. Boniface.	35	74 days	43 days	113 days

SUMMARY

The treatment of thirty-five cases of gonorrhoeal vulvo-vaginitis in St. Roch's Hospital during the year 1931-32 is recorded.

The essentials in the successful treatment are: uniformity of treatment, trained assistants and hospitalization. The good results may be attributed largely to scrupulous attention to general cleanliness, maintenance of the children's well-being, the inclusion in the routine treatment of all remedial measures which appeared to offer any promise of benefit, and attention to details.

Compared with the results given by others, a striking curtailment of the length of time necessary for cure is evidenced. Cure is possible and may be speedy, and there is an absence of any recurrence even after provocation.

ACKNOWLEDGMENTS

My sincere thanks and appreciation are extended to Nursing Sister Benjamin and Nurse Katherine Sweeney for the able and skilful way in which they carried out the prescribed treatment of these children; also to all the members of the attending staff for their kind co-operation.

**Br. J. Ven. Dis.*, Oct., 1930.

Cross-Connection Dangers in Plumbing*

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THE public health importance of proper plumbing is at last receiving some measure of recognition. Formerly the prevention of nuisances and the avoidance of damage to property appear to have been regarded as the principal basis for the supervision of plumbing.

For a long period of years most waterworks operators have been properly concerned regarding the provision of a safe water supply. Until recently there has been a disposition to regard the existence of cross-connections with impure water supplies as the principal menace to the safety of an otherwise pure water supply. Even where such cross-connections apparently do not exist there are at times outbreaks of disease which closely resemble water-borne types.

The pollution of water by drainage or siphonage from fixtures having submerged inlets and by siphonage from waste pipes is a similar menace to health. The presence of this danger is easily demonstrated in almost all large buildings and frequently in smaller ones. The increasing use of fixtures where such pollution is possible has made the correction of the existing conditions necessary.

In large buildings, especially, there is no ready means for the user of a fixture to determine definitely in advance whether a positive pressure or a partial vacuum exists in the supply pipe. The valve is opened and if there is no pressure, one simply waits for water. In considerable areas of a certain large city this condition exists upon the third floors of many buildings during the hours when lawns are being sprinkled on warm days.

For many years surgeons have sought the cause of post-operative infections. Some factors were discovered and eliminated but infections still continued, sometimes in explosive outbreaks strongly suggesting an undetermined common means of infection. The explosiveness and the distribution of cases bear many resemblances to water-borne disease.

Reported Outbreaks due to Cross-Connections

In August, 1917, the Cincinnati Building and Health Departments reported the pollution of drinking water throughout a hotel by means of improper plumbing connections to a public plunge bath.

*Presented before the Public Health Engineering Section of the Canadian Public Health Association in joint session with the Ontario Health Officers' Association (nineteenth annual meeting), Toronto, May, 1933.

In July, 1923, the final report of the Sub-Committee on Plumbing of the Hoover Code Committee stated, "No water closet or urinal bowl shall be supplied directly from a water supply system through a flushometer or other valve unless such valve is set above the water closet or urinal in a manner such as to prevent any possibility of polluting the water supply."

In May, 1926, the New York State Department of Health published an account of the emptying of an instrument sterilizer in a hospital when the attendant opened the water supply valve and the danger of infection of the drinking water supply was pointed out.

In April, 1928, the Chicago Department of Health demonstrated the possibility of causing wound infections in hospitals by contamination of sterile water through faulty plumbing. This was followed up by a campaign to eliminate all plumbing connections whereby either the drinking or sterile water supplies in hospitals might become contaminated. In 1929 the Commissioner of Health of Chicago pointed out before the Illinois Medical Society that the infection of the water supply by siphonage from a bottom-supply instrument sterilizer, followed by the leakage of the germ-laden water into the sterile water tanks through a defective valve would account for these outbreaks. This was an observation of great importance. Samples of water taken from sterile water taps during an operation were examined and found to be unsterile, even though at the time of collecting the samples, the water was being used by the surgeon in the belief that it was safe to use. The cycle of transmission of the organism from an infected wound to clean wounds in other patients, is very direct and no doubt is responsible for the explosive character of the outbreaks of infections.

To prevent water pollution through submerged inlets to fixtures and direct waste connections, all water pipe and waste pipe installations must receive more careful supervision.

The contamination of potable water supplies with fixtures contents by siphonage or back pressure is receiving an increasing amount of attention in the United States and Canada as well as in certain countries in Europe.

The public health importance of proper supervision over the growing intricacies of modern plumbing, especially in large buildings of great height, is rapidly being recognized even by those who formerly believed that the interest of the public health official in the water supply stopped at the lot-line. With this wider realization of its importance, more and more plumbing research is being undertaken and it is hoped that in the near future many contentious problems will be solved.

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PROGRESS IN CANCER CONTROL

IN a notable address presented before the annual meeting of the Association in Saint John, New Brunswick, Dr. Joseph Colt Bloodgood made the following impressive statement:

"The students of cancer throughout the civilized world agree that if we could apply the knowledge we have now for the prevention, diagnosis and treatment of cancer, we would quickly reduce cancer from second place among the causes of death down to an insignificant position in mortality statistics. We need no more discoveries to accomplish this, although the ultimate complete eradication of cancer depends upon successful research as to its specific cause and to its specific prevention and cure."

From a wide clinical experience Dr. Bloodgood supports this assertion, stressing the large part played in cancer mortality by such conditions as cancer of the skin, of the mucous membrane of the oral cavity and of the cervix which, if diagnosed early, can be treated with a high degree of success. To accomplish this reduction, the professions of medicine and dentistry must be in a position to recognize cancer in its earliest stages and the public must be educated to appreciate the value of continuous health supervision as afforded by periodic health examinations and by consultation between such examinations if any condition arises. The key note is early diagnosis.

The first province in Canada to provide a programme for cancer control was Saskatchewan. In the plan which is outlined by Dr. R. O. Davison, deputy chairman of the Commission, in this issue, the importance of early diagnosis is stressed and provision is made for diagnosis by the establishing of special clinics.

During the period of less than two years in which the Commission has functioned, more than 900 patients have been admitted to the clinics, of whom approximately 200 were found to be suffering from non-cancerous conditions. These figures indicate a gratifying response on the part of the physicians of Saskatchewan in using the diagnostic facilities of the clinics. The pressing need for a more widespread knowledge of the importance of early diagnosis is evidenced by the fact that a very high proportion of the cases admitted to the clinics were in an advanced stage of the disease,—too far advanced for successful

employment of treatment. Every effort is being made to meet this need by a carefully planned programme of public education in which the medical and dental professions are actively co-operating. Saskatchewan's programme is the result not only of the appreciation of cancer as an urgent public health problem but a realization of what can be accomplished now by utilizing as completely as possible our present knowledge.

THE SPECIFIC PREVENTION OF MEASLES

WITH the gratifying reduction in the number of cases and deaths from diphtheria, a reduction due in large part to the extensive use of toxoid, the deaths from measles stand out prominently and constitute a challenge to organized preventive medicine.

The extent of the measles problem to-day is practically the same as it was thirty or more years ago. In a recent study in the School of Hygiene, University of Toronto, Ross has shown that there is no evidence in mortality statistics of any sustained decline in the death rate from this disease. Owing to the nature of the spread of measles, quarantine and isolation regulations appear to be ineffective, as more than 90 per cent of our population experience an attack of the disease which, in the majority of cases, occurs during school life.

In so far as mortality is concerned, the measles problem can be stated very briefly: an average of approximately 500 deaths per year in Canada. Practically 85 per cent of the deaths occur in children under five years of age, 63 per cent under three years of age, and over 22 per cent in infants in their first year of life. Further, it is general knowledge and well established, though such essential facts are not revealed in the various official tabulations of measles deaths, that many of these occur in children's institutions. The reason that these institutions are prone to contribute a large part of our measles mortality probably lies in the intimacy of contact and possibly in increased susceptibility, as the children tend to be less robust coming from homes where economic and social conditions are unsatisfactory. The point of attack, therefore, seems sufficiently clearly indicated: the young child, the poorly developed child, and, especially, the child in the institution.

What can be done? In the discussion of the specific prevention of measles, scarlet fever and diphtheria by Dr. J. G. FitzGerald in the October issue of the JOURNAL, a practical procedure is described in detail. The method is extremely simple, calling for the administration of either serum or blood from persons who have recently had measles. The use of blood from parents who had measles in childhood may serve to modify the attack, if used in larger doses. To prevent the disease, the immune serum must be given within four days after exposure to infection; but if given later, within eight days after exposure, the disease may be either prevented or modified. It is time that definite steps be taken to focus attention on this proven method of preventing many of the deaths which annually occur from measles.

Programme

LABORATORY SECTION MEETING

CANADIAN PUBLIC HEALTH ASSOCIATION

ROYAL YORK HOTEL, FRIDAY, December 22, 1933

Section Officers

Chairman
DR. N. MACL. HARRIS
Ottawa

Vice-Chairman
DR. F. H. CADHAM
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Secretary
DR. M. H. BROWN
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Section Council, 1933-34

DR. D. T. FRASER
Toronto

DR. N. MACL. HARRIS
Ottawa

DR. A. L. McNABB
Toronto

Chairman, Committee on Standard Methods
MR. N. J. HOWARD

DIRECTORY OF SESSIONS

Morning Sessions, 9.15 a.m.

Medical Bacteriology—Room 9.

General Bacteriology, with special reference to milk—Room 10.

Demonstration of Laboratory Procedures, 12.00 noon—Room 8.

Luncheon Session, 1 p.m.—Room 9.

Afternoon Session, 2.30 p.m.—Room 10.

Guest Speaker, Dr. J. P. Leake

MORNING SESSIONS, 9.15 a.m.

Medical Bacteriology—Room 9.

"Tubercle Bacilli in Excreta of Tuberculous Indian Children"—Dr. A. B. Sims, Miss Evelyn Paynter and Dr. R. G. Ferguson, Fort Qu'Appelle, Saskatchewan.

"Post-Operative Lycopodium Granulomata"—Dr. I. H. Erb, Pathologist, Hospital for Sick Children, Toronto.

"Active Immunization of Man against Tetanus"—Dr. P. A. T. Sneath, Connaught Laboratories and School of Hygiene, University of Toronto.

"The Incidence of Streptococcus Haemolyticus in the Throats of Normal Persons"—Dr. Gordon Cameron, Professor of Bacteriology, Faculty of Dentistry, University of Toronto.

"The Rate of Response of Rabbits to Two Antigens in Tubercle Bacilli"—Dr. G. B. Reed, Dr. Christine E. Rice and Dr. B. G. Gardiner, Department of Bacteriology, Queen's University, Kingston.

"Hydrogen Electrode Measurements of Culture Media"—Dr. P. J. Moloney, School of Hygiene and Connaught Laboratories, University of Toronto.

"Further Studies of Bacillus Welchii"—Dr. J. H. Orr and Dr. J. E. Josephson, Department of Bacteriology, Queen's University, Kingston.

"The Fourth Venereal Disease (Lympho-Granuloma Vaginale)"—Dr. F. B. Bowman, Hamilton, Ontario.

"Chemical Estimation of Vitamins"—Dr. E. W. McHenry, School of Hygiene and Connaught Laboratories, University of Toronto.

General Bacteriology, with Special Reference to Milk—Room 10.

Chairman, Mr. N. J. Howard, Director, Filtration Plant Laboratory, Department of Public Health, Toronto.

"The General Principles underlying Meat Inspection"—Dr. A. R. B. Richmond, Division of Food Control, Department of Public Health, Toronto.

"Biological Study of the Streptococci of Human, Animal and Other Origins Found in Milk"—Dr. J. M. Rosell, Professor of Bacteriology, Faculty of Agriculture and Veterinary Medicine, University of Montreal, and Dr. D. H. Starkey, McGill University.

"Distribution of *Brucella Abortus* in the Infected Udder"—Dr. Redvers Thompson, Macdonald College, McGill University.

"*Brucella Abortus* Infection in Cattle in Relation to Milk"—Dr. Ronald Gwatkin, Ontario Research Foundation, Toronto.

"Brilliant Green Bile Media in Routine Examinations of Water"—Mr. N. J. Howard, Director, Filtration Plant Laboratory, Department of Public Health, Toronto.

"Clean Bottles as a Factor in Clean Milk"—Dr. W. J. Deadman, Bacteriologist, City Hospital, Hamilton, Ontario.

"Survey of Pasteurizing Plants in a Large City"—Dr. A. E. Berry, Director, Division of Sanitary Engineering, Department of Health, Ontario.

"Some Observations on Milk Control from the Standpoint of the Distributor"—Dr. J. E. Mumford, City Dairy Company Limited, Toronto.

DEMONSTRATIONS

12.00 noon—Room 8

Isolation of Tubercle Bacilli by Different Methods, including the Use of Different Culture Media—Dr. W. B. McClure and Miss Baycroft, Division of Laboratories, Department of Health, Ontario.

Preparation of Carbohydrate Media—Mr. A. D. McClure, Division of Laboratories, Department of Health, Ontario.

An Improved Outfit for Deep Water Sampling—Mr. J. E. Gibbard, Laboratory of Hygiene, Department of Pensions and National Health, Ottawa.

Flocculation Tests in Syphilis, including Hinton, Presumptive Kahn, Kline and Eagle—Dr. A. L. McNabb and Miss Gladys Matthews, Division of Laboratories, Department of Health, Ontario.

Prolonged Dark Field Examination in Syphilis—Dr. A. L. McNabb and Mr. A. D. McClure.

Common Algae as related to Water Supplies—Dr. A. E. Berry, Division of Sanitary Engineering, Department of Health, Ontario.

LUNCHEON

1 p.m.—Room 9 (Tickets, \$1.00).

Chairman, Dr. D. T. Fraser, School of Hygiene and Connaught Laboratories, University of Toronto.

AFTERNOON SESSION

2.30 p.m.—Room 10.

"The Recent Outbreak of Encephalitis in St. Louis, Mo."—Dr. J. P. Leake, Surgeon, United States Public Health Service, Washington; Director of Encephalitis Research.

"Some Observations on the Epidemic of Poliomyelitis in Quebec in 1932"—Dr. A. R. Foley, Epidemiologist, Provincial Bureau of Health, Quebec.

"Laboratory Aids in the Diagnosis of Smallpox"—Dr. James Craigie, School of Hygiene and Connaught Laboratories, University of Toronto.

EPIDEMIOLOGY AND VITAL STATISTICS

Amoebic Dysentery in Canada

(Report of a Case)

T. H. BELT, M.B., B.Sc. (Med.)

Department of Pathology, University of Toronto, and Toronto General Hospital

CASES of amoebic dysentery make their appearance from time to time in Canada and serve to remind us that the disease is not confined to the tropics. Often enough when it does occur, the condition is not recognized clinically, due to the insidious manner of onset or to misleading symptomatology. In most if not in all cases, the infection is contracted outside of Canada, but the incubation period is often so long that the source of infection is lost sight of, and the individuals concerned fail to associate the illness with foreign travel. The following is a case in point.

Clinical Data

The clinical data were kindly furnished by Dr. W. P. Warner. A. M., a Canadian lumberman aged 64, was seen in consultation August 7, 1933, complaining of fatigue and weakness for one year, feverishness (as high as 102°) for 10 days. There were no intestinal symptoms. He had lived in Japan for some months in 1928-29 but enjoyed good health while there and after his return. On examination he presented evidence of chronic tuberculous lesions in both apices but there were no other significant findings. Subsequently diarrhoea developed and persisted for a few days. On August 14, 1933, he was suddenly seized with severe pain in the upper right abdomen and right shoulder and fell into a state of extreme shock. The abdomen in the right upper quadrant was rigid and tender. Severe pains recurred every three or four hours for the first day and he continued to have diarrhoea with considerable fresh blood in the stools. The temperature hovered around 101° and the white count ranged between 25,000 and 35,000. A barium enema showed a constriction of the transverse colon which was thought to be either carcinoma or scarred tuberculous ulcer. A large subdiaphragmatic abscess was found on the right side and drained. The abscess contained much

blood-stained pus, cultures of which were negative. Blood culture and Widal were negative. Symptoms of peritonitis developed and death occurred August 26, 1933, without a definite diagnosis having been reached. It was felt that the condition was either carcinoma of the transverse colon with perforation, sub-hepatic abscess and peritonitis, or tuberculous enteritis with the same sequelae. The latter view found support in the presence of tuberculous lesions in both lungs.

Autopsy Findings

At autopsy the body was that of a tall, well proportioned, elderly man measuring 183 cm. in length and estimated to weigh 160 lbs. The surgical incision in the right flank, through which the subdiaphragmatic abscess had been drained, gaped widely, possessed dirty, necrotic, foul-smelling margins. There was a diffuse, foul-smelling peritonitis of a few days' duration. The entire caecum and ascending colon were necrotic, dark brown, soft and stinking, and tore on the slightest manipulation. The hepatic flexure was firmly adherent to the under surface of the liver just lateral to the gall bladder. In this region was a large abscess which invaded the liver. The appendix was long and angry red but not necrotic like the caecum. It lay free and had no abscess in relation to it. The caecum, ascending colon and hepatic flexure were so necrotic that it was impossible to detect lesions in the mucosa. This necrosis continued up to a point in the transverse colon, a little to the right of the midline, where an annular band about 1.5 cm. broad constricted the lumen. This band was in the form of a whitish, welt-like elevation of the mucosa supported by tough tissue of fibrous consistency. Distal to this point there were 2 or 3 more raised plaques in the mucosa but these soon gave place to ulceration which involved almost the entire mucosa down to the anus. Most of the ulcers were circular (see photograph); some were elongated and partially encircled the gut. They had soft, pale, raised edges formed of swollen mucosa, outside of which was an angry red zone. The larger ulcers possessed dirty brown central parts in which the mucosa was reduced to fine necrotic shreds. In the smaller ulcers

the necrotic mucosa was yellowish and not yet broken up.

The liver was large and flabby. It weighed 2150 grams. The under surface of the right lobe presented a large area of sloughing, yellowish tissue which was shreddy and very ragged in appearance. This lesion was trabeculated with strands of tough fibrous tissue and was separated from the rest of the liver by a thick zone of scar tissue. The abscess was strictly limited to the under surface of the right lobe and appeared to have arisen by direct extension from the hepatic flexure of the colon with which it was in contact. There were no other abscesses demonstrable in the liver. The gall bladder formed part

granulation tissue of the older lesions. None was found in the liver sections. The amoebae averaged about 25 micra in diameter, were vacuolated, possessed of small single nuclei about 7 micra in diameter and some of them contained phagocytized red and white blood cells.

This, then, was a case of acute and chronic amoebic ulceration of the large intestine with stenosis of the transverse colon and gangrene of the caecum and ascending colon. Lesions in the hepatic flexure had eroded

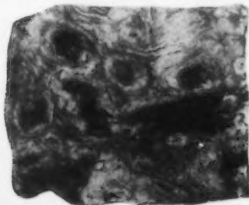
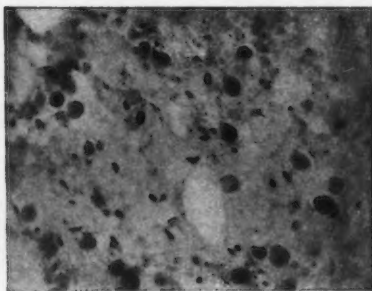
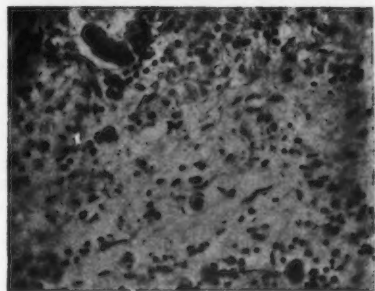


FIGURE 1 (Left)

Portion of rectum showing typical amoebic ulcers.



FIGURES 2 AND 3

Micro-photographs of tissue at edge of acute ulcer of rectum showing numerous *Entamoebae histolyticae* embedded in the sub-mucosa.

of the wall of the abscess but was not much altered.

The apices of both lungs showed localised puckered scarring but no evidence of active tuberculosis. The first lumbar vertebra contained a large spherical area of soft, hemorrhagic tissue, at first thought to be a metastatic abscess but which, on section, proved to be a hemangioma.

Examination of Sections

Microscopic sections of the recent ulcers in the rectum showed numerous amoebae embedded in the submucosa along the advancing margin of necrosis (see micro-photograph). A few amoebae were also seen in the cellular

through the gut and into the liver, forming a large abscess. It was at first thought that the man had contracted the infection in Japan four years previously (See addenda). Probably the sudden attack of pain was due to rupture of the subhepatic abscess. It is rather astonishing to note that the disease progressed to this point without symptoms of dysentery. Such a history is, however, not uncommon in these cases. Craig emphasized that dysentery is simply one stage of amoebiasis, that

the initial symptoms may sometimes be referable to liver abscess. Bartlett and others have found at autopsy definite amoebic ulceration of the caecum in cases which presented no evidence of dysentery during life. Craig estimates that 5 to 10 per cent of American adults are infected with *Entamoeba histolytica*, but only a small percentage of them present symptoms. Wenyon believes *Entamoeba histolytica* is world wide in distribution and is only held in control by sanitation of water and food supplies.

Infection takes place by the ingestion of the encysted forms and the diagnosis is made by the identification of the parasite in the stools.

Bates (1925) reported a case of amoebic dysentery in a woman who had never been out of Canada and found reports of two similar cases arising in Canada. In 1929 Bates reported two additional cases in both of which the infection was thought to have been contracted in Canada, though both individuals saw service in France during the great war. All three of Bates' cases came to autopsy without clinical recognition of the disease. One case was diagnosed as carcinoma of the transverse colon and the bowel was resected with fatal results. Another was regarded as ulcerative colitis and in the third the symptoms suggested appendiceal abscess.

To our knowledge no survey has been undertaken to determine the incidence of amoebic infection in Canadian communities, but probably it is comparable to that of the Northern United States where according to statistics collected by Craig, 4 per cent or more of the people have intestinal amoebiasis. Craig believes there can be no infection without lesions. If this be true, then amoeb-

biasis is relatively rare in this locality, for the present case and the three reported by Bates are the only instances of amoebic lesions encountered in more than 3000 autopsies, performed in this Department under the direction of Professor Oskar Klotz.

ADDENDA

Subsequent to drawing up this report it was learned that the individual had visited Chicago in June of this year (1933) and had stayed at a certain hotel. Several other persons who were guests of the hotel at the same time sickened and died of "colitis" after returning to their homes in various parts of the United States. At least four of these were proven to have died of amoebic dysentery. To Dr. Charles C. Lund of Boston belongs the credit for linking these cases together and tracing them to a common source. A report of the epidemic by Dr. Lund will appear shortly in the *Journal of the American Medical Association*. The present outbreak is the second in Chicago where the source of infection has been traced to carriers amongst food handlers. The previous epidemic was reported by Williamson et al (1929).

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PUBLIC HEALTH ENGINEERING

Recent Exhibits of Special Interest

THE value of well planned and well prepared exhibits in presenting to the public various aspects of the work of a department of health is being recognized more fully each year. In no field of public health can

interest in the city's recently constructed modern water filtration plant. The exhibit had three main divisions. The striking feature which attracted attention was the "mystic fountain", suitably placed in the centre of the ex-



THE "MYSTIC FOUNTAIN"—A PHOTO-ELECTRIC RAY OPERATING THE HYDRAULIC VALVE OF THE SOLENOID TYPE WAS CUT OFF AS ONE BENT ONE'S HEAD TO DRINK, AND THE FLOWING JET OF WATER CEASED TO BUBBLE—A SOURCE OF WONDER TO ALL.

exhibits be used with greater effectiveness than in public health engineering.

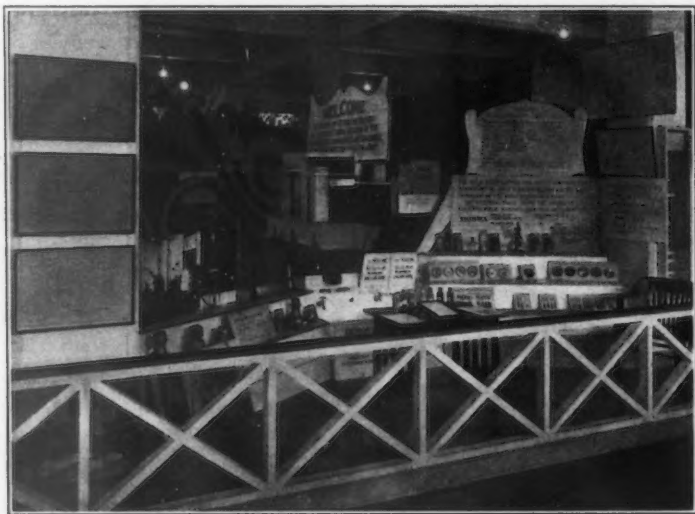
One important consideration in planning an exhibit is to relate it as far as possible to the needs of the community. This was admirably accomplished in the health exhibits displayed at the annual Central Canada Exhibition in Ottawa this fall. Two exhibits were of special interest. One was prepared by the Waterworks Department of the City of Ottawa with the objective of creating an intelligent

hibit. In the background was a replica of the new filtration plant. On the left side of the exhibit space a section of the system of mains, house service connections, hydrants, etc., was shown. On the right a large modern turbine pump and an eighteenth century water wheel formed a striking contrast of the old and the new methods of delivering water. This exhibit attracted much attention, especially from the ratepayer, who appreciated the effort to justify and ex-

plain expenditure incident to the installation.

Laboratory services were stressed as the "safety" factor in a supply for human consumption and this aspect was illustrated by an exhibit on loan

tion on the bill for water wasted in the homes during a year. The ratepayer was thus interested in the cost of necessary water treatment and how he could save taxes by avoiding waste of the treated water in his own home.



LABORATORY EXHIBIT DEMONSTRATING BACTERIOLOGICAL AND CHEMICAL CONTROL OF A PUBLIC WATER SUPPLY.

from the Sanitary Engineering Division, Ontario Department of Health. An interesting arrangement contrasted the raw river water and the product as delivered in the homes of Ottawa, while an open tap with its running stream of filtered water focused atten-

Reiteration of this message was productive of results, as the waterworks officials have traced a saving of \$15,000 in chemicals alone to the good effects of the exhibit at the 1932 exhibition.

NEWS FROM THE FIELD

Dr. FitzGerald Honoured

DR. J. G. FITZGERALD, Dean of the Faculty of Medicine and Director of the School of Hygiene and Connaught Laboratories, University of Toronto, sailed from New York on December 15th to make a study of health conditions in India for the International Health Division of the Rockefeller Foundation, in com-

pany with Dr. F. F. Russell of the Foundation and Dr. W. W. Jameson, Director of the London School of Hygiene and Tropical Medicine. The Board of Governors of the University of Toronto, expressing appreciation of this invitation, has granted leave of absence to Dr. FitzGerald until March 1st.

Appointment of Dr. G. J. Wherrett as Executive Secretary, Canadian Tuberculosis Association

ANNOUNCEMENT of the appointment of Dr. G. J. Wherrett, M.R.C.P., of Ft. Qu'Appelle, Saskatchewan, as Executive Secretary of the Canadian Tuberculosis Association has been received throughout Canada with many expressions of appreciation. Dr. Wherrett succeeds Dr. R. E. Wodehouse, who recently was appointed Deputy Minister of Health in the Department of Pensions and National Health, Ottawa.

Dr. Wherrett, a graduate of the University of Manitoba, has been an active leader in the anti-tuberculosis work in Saskatchewan and in the Maritime provinces. He first joined the Saskatchewan Anti-Tuberculosis League in 1924. Later he became director of the Maritime Tuberculosis Educational Committee, which was instrumental in greatly enlarging the tuberculosis programme. Following an extensive period of post graduate study during which he received membership in the Royal College of Physicians, London, he was appointed to the Saskatchewan Sanatorium at Ft. Qu'Appelle.

The Canadian Tuberculosis Associ-

ation is to be congratulated on having so able a successor to Dr. Wodehouse in carrying forward its far reaching programme.



DR. G. J. WHERRETT, M.R.C.P.,
Executive Secretary,
Canadian Tuberculosis Association.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA* BY PROVINCES—OCTOBER, 1933

Diseases	P.E.I.	Nova Scotia	New Brunswick	Quebec	Ontario	Mani- toba	Saskat- chewan	Alberta	British Columbia
Diphtheria.....	—	2	9	119	29	54	7	1	1
Scarlet Fever...	2	31	8	278	210	76	26	18	151
Measles.....	—	—	—	107	29	2	3	—	4
Whooping Cough.....	—	18	7	327	346	117	110	12	68
German Measles	—	1	—	4	2	—	2	—	30
Mumps.....	—	—	—	255	82	11	46	2	132
Smallpox.....	—	—	—	—	—	—	—	—	—
Cerebrospinal Meningitis...	—	1	—	1	3	1	1	—	—
Anterior Poliomyelitis..	—	—	2	17	11	2	6	2	—
Typhoid Fever..	1	7	16	209	65	11	7	2	3
Trachoma.....	—	—	—	—	—	1	3	—	4

*Data furnished by the Dominion Bureau of Statistics, Ottawa.

AN APPRECIATION OF THE LATE

SIR ARTHUR WILLIAM CURRIE, G.C.M.G., K.C.B., K.C.M.G., C.B.

"WE, members of the Corporation of McGill University, desire to place on permanent record our sense of corporate loss and personal sorrow in the death of the Principal, Sir Arthur Currie.

"He came to us a famous man; he leaves us, his fame enhanced, the University glorified. His career as Commander and Principal is one, an emanation from his own inner quality, himself. He was a good man; not all the words in the books can say more.

"Of right and wrong, of true and false, his judgment was final. His hands were clean; the blue light from his eye came straight and single; his heart and mind was sincere, unclouded by any tinge of self, of favour, or fear.

"Soldiers, professors, students, are equally alive to that secret power; and we of the University may now take comfort in our loss and sorrow, that without reserve we gave to the wise, kind, and winsome Principal a consequent loyalty and affection. His life's purpose is fulfilled. Victory is with him."

The Canadian Public Health Association is grateful for the privilege of publishing this resolution. To the Corporation of McGill University and members of the staff and to the graduates and friends of the University the Association expresses its appreciation of Sir Arthur Currie's great life and extends its heartfelt sympathy.

SEAL SALE, CANADIAN TUBERCULOSIS ASSOCIATION



THE Christmas Seal Campaign is again in full swing in all provinces of Canada. All last year's committees are active again this year. The money raised by these committees is used locally, except ten per cent, which is used by the Canadian Tuberculosis Association to cover the cost of seals, envelopes, letterheads and advertising material provided by the Association.

The funds were used entirely in the prevention of tuberculosis. They provided diagnostic clinics, supported visiting nurses, health camps for children and X-ray equipment necessary in diagnosis. The service rendered by these agencies is being increased year by year and the tuberculosis death rate continues its downward trend. Last year \$132,279 was raised by this effort. It is hoped the response throughout Canada will equal or exceed that of last year.

"CHRISTMAS SEALS COST LITTLE, THEY DO MUCH"

BOOKS AND REPORTS

Practical Food Inspection. Vol. I.—*Meat Inspection.* Vol. II.—*Fish, Poultry and Other Foods.* By Charles R. A. Martin, M.R.S.I., A.M.I.S.E., Senior Sanitary Inspector, Whitestable, England. Published by H. K. Lewis & Co. Ltd., 13 Gower Street, London, 1933. 362 pages. Vol. I, 15/-, Vol. II, 10/6.

From his long experience as an inspector, Mr. Charles R. A. Martin has brought together in these two volumes the essential knowledge on which an inspector may base his actions in food inspection. The two books are written for the inspector in as non-technical a manner as possible, to serve as practical guide books. He has presented the material clearly and in a very orderly manner, evidencing his ability as a teacher.

Vol. I.—*Meat Inspection.* An efficient system of meat inspection requires a competent inspectorial staff and concentration of slaughter. This volume presents both of these subjects. Without question the veterinarian is best qualified for the duties of meat inspection. In Great Britain, where meat inspection has attained a very high standard, sanitary inspectors holding special certificates are also employed. The book, therefore, primarily meets the needs of the inspector without veterinary training, but the subject matter is so well presented that the book will be of definite value to the experienced veterinarian. All students of public health are familiar with Memorandum No. 62, issued by the Ministry of Health, which contains the rulings in meat inspection. Mr. Martin makes frequent reference to this memorandum in the discussion of the various conditions which present themselves in meat inspection. In simplifying the subject as far as possible and in keeping the lay reader in mind, the author has not sacrificed accuracy. This volume of 362 pages can well be included in the

working library of every sanitary officer having responsibility for meat inspection.

Vol. II.—*Fish, Poultry and Other Foods.* In this volume of 243 pages the subjects of milk and milk products, fish, poultry and game, fruits and vegetables, etc., are discussed. Although there is much in this volume which is, of necessity, of primary interest to inspectors in Great Britain—as, for instance, the chapter of some thirty pages dealing with legislation—the book supplies a fund of essential information for food inspectors in other lands.

R. D. D.

The Biology of the Protozoa. By Gary N. Calkins, Ph.D., Sc.D., Professor of Protozoölogy, Columbia University, New York. Second edition, thoroughly revised. Published by Lea & Febiger, Washington Square, Philadelphia, Pa., 1933. 607 pages. Price (cloth), \$7.50 net.

From the point of view of the general readers of this journal, Professor Calkin's authoritative treatise on the biology of the protozoa is not of practical interest. As a reference work in the field of protozoa, however, it is outstanding and its value is evidenced by the publication of this second edition. A chapter of special interest to medical readers is one devoted to a discussion of ecology, commensalism and parasitism.

The book is a mine of biological and historical information, illustrated with more than 200 engravings and furnished with a very complete bibliography.

P. A. T.

Highways to Health. By Donald Y. Solandt, M.A., M.D. Published by the Ryerson Press, Toronto, 1933. 159 pages. Price \$1.00.

We have no hesitation in stating that the study of health promotion and disease prevention in primary and

secondary schools is inadequate. Children are intensely interested in knowing how the body works. One can think of many less attractive and less instructive subjects taught in our schools. Unfortunately, to some of those whose duty it is to prescribe the curriculum, hygiene apparently implies an incoördinated jumbled mass of facts about bones and muscles, sewage disposal, wells, clothing, tobacco and alcohol, and rightly remembered as a tiresome and almost useless study. Modern books upon this subject do much to dispel this erroneous conception. *Highways to Health* is one of such books.

The author has divided his subject matter into eight chapters: Health and the Human Body, Your Body and Its Care, Food, Using Your Body, Life's Tyrants, The Conquest of Disease, Safeguarding Health, First Aid. Each of these chapters is divided into five subsections. It is obvious that almost every phase of personal and community hygiene is touched upon.

The numerous illustrations are excellent, original and attractive. The book may be characterized as a health reader rather than a text book. This distinction is perhaps not a very definite one. However, *Highways to Health* presents essentially a statements of facts without the experimental, statistical or epidemiological background to substantiate them. There is often no answer to the enquiring mind as to how the conclusions are reached. The reader is not stimulated to think for himself. On the whole the book overemphasizes the point of view that "keeping fit" will prevent illness. For example, although suitably qualified, the statement is made that "the sensible regulation of one's life will avoid such an unfortunate occurrence" (tuberculosis). Emphasis later in the text is not placed upon the fact that exposure to open cases of tuberculosis is the important factor in the incidence of the disease. The statements "boiling water for 15 minutes" to make it safe and

"pasteurization kills all germs" might be modified. The section on tobacco deprives even the moderate smoker of every whiff of smoke.

The text is singularly free of errors; the style is clear and the format leaves nothing to be desired in attractiveness. The book can be highly recommended for use in schools and will help to ensure that the parents of the next generation will have an intelligent appreciation of the prevention of disease and the promotion of health.
D.T.F.

A Study of Rural Public Health Service. Edited by Allen W. Freeman, M.D., for the Committee on Administrative Practice of the American Public Health Association. Published by the Commonwealth Fund, 41 East 57th Street, New York, 1933. 236 pages. Price, \$2.50.

How can rural areas receive an adequate health service? What is the best form of organization for such areas? With the findings of the detailed studies of 46 selected county or district health departments in the United States and Canada and of a less intimate but more extensive inquiry concerning the work in 337 full time county units, a clearer answer can now be given to these questions. We owe this volume to the American Public Health Association which, through its Committee on Administrative Health Practice, entrusted to a sub-committee this continent-wide survey of rural health work under the chairmanship of Dr. E. L. Bishop. The report has been prepared by Dr. Allen W. Freeman, Professor of Public Health Administration in the School of Hygiene and Public Health, Johns Hopkins University, who is eminently qualified to report critically on the findings. The arrangement of the material is excellent and Dr. Freeman is to be congratulated on analysing the data of the survey in such a satisfactory and profitable manner. Consideration is given as each activity

of the health organization is presented, first to the findings of the areas selected for survey and then to those areas which supplied detailed information but in which a survey by an officer of the committee was not made. The local health organizations are outlined and the services performed by the state are considered. Personnel and expenditures are surveyed and the essential data presented in tabular form. The major activities of the health organization — communicable disease control, maternity hygiene, infant and pre-school hygiene, school hygiene, diagnostic laboratory service, general sanitation and health instruction—are discussed. The volume affords a descriptive cross-section of the status of rural public health work and forms a basis for the tentative development of standards in rural health work.

R. D. D.

Pathogenic Microorganisms. *A practical manual for students, physicians and health officers* by William Hallock Park, M.D., and Anna Wessels Williams, M.D., Bureau of Laboratories of the Department of Health, New York City. Tenth edition, enlarged and thoroughly revised. Published by Lea & Febiger,

Washington Square, Philadelphia, 1933. 867 pages. Price \$7.00.

It is four years since a new edition of this standard work on the pathogenic bacteria has appeared. It is always interesting to the reviewer to see what advancements in knowledge an author considers suitable for inclusion in the revision of a book. The task is a difficult one. One is mindful of the wealth of material in this field from which a selection may be made. Some fifty pages have been added, but this, however, does not adequately represent the extent of revision.

In Part I, which comprises one-third of the book, many sections have been rewritten and new material presented. There is an interesting chapter on immunity of the new-born. Sensitization, fixation, staining of flagella, bacteriostasis, filterable viruses, Schwartzman (wrongly spelled in the text and index) reaction, fermentation and reductions are some of the subjects which have received more consideration or have been introduced as new material. The newer knowledge of flocculation and its application and of viruses has been greatly amplified.

The volume is a standard American text book, widely and highly recommended.

D. T. F.

BOOKS RECEIVED

Food, Nutrition and Health. By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A., Professor and Associate Professor of Biochemistry, School of Hygiene, The Johns Hopkins University, Baltimore. Third edition, 1933. Published by the authors; address, East End Post Station, Baltimore. 146 pages. Price \$1.50 postpaid.

Physiological Health. Volume IV of *Interpretations of Physical Education*, School of Education Series, New York

University. Edited by Jay B. Nash. Published by A. S. Barnes and Co., 67 West 44th Street, New York, 1933. 308 pages. Price \$2.00.

Industrial Health Service. By Leverett Dale Bristol, M.D., Dr. P.H., Health Director, American Telephone and Telegraph Company, New York; formerly Commissioner of Health for the State of Maine. Published by Lea & Febiger, Washington Square, Philadelphia, 1933. 170 pages. Price \$2.00.

CURRENT HEALTH LITERATURE

These brief abstracts are intended to direct attention to some articles in various journals which have been published during the preceding month. The Secretary of the Editorial Board is pleased to mail any of the journals referred to so that the abstracted article may be read in its entirety. No charge is made for this service. Prompt return (after three days) is requested in order that the journals may be available to other readers.

The Need of an Index Statisticus

For want of proper indexes, much valuable statistical material is at present practically inaccessible. Better indexing of annual volumes is called for, and the question of the possibility of providing an international statistical index for public health and related fields is raised. A symbolic code for indicating the content of tables is given which aims at greater specificity and compactness than is possible with conventional verbal titles.

A. W. Hedrich, *Am. J. Pub. Health*, 23: 1159 (Nov.), 1933.

"Missed" Epidemics of Septic Sore Throat

There is a marked and unexplained disparity between the numbers of epidemics recorded in certain adjoining states. Factors which might contribute to this disparity are: (1) incorrect diagnosis or epidemics erroneously classified as milk-borne, (2) infection more prevalent in some states than others, (3) epidemics prevented by effective milk control, and (4) epidemics overlooked. Factors (1), (2) and (3) are rejected by the author, who is convinced that many epidemics are overlooked. In support of this view he cites a number of instances of belated recognition of epidemics in a state thoroughly organized for the discovery of outbreaks.

Paul B. Brooks, *Am. J. Pub. Health*, 23: 1165 (Nov.), 1933.

The Health Hazard of Amebic Dysentery¹

The Threat of Amebiasis in the Food Handlers²

Both reports deal with the recent epidemic of amebic dysentery which had its focus in a Chicago hotel. The epidemiology of the outbreak, control measures and laboratory diagnostic procedures are described. A third article reviews current knowledge concerning the symptomatology, differential diagnosis and treatment of amebic dysentery.

¹Herman N. Bundesen et al., *J.A.M.A.*, 101: 1636 (Nov. 11), 1933.

²Fred O. Tonney et al., *ibid.*, 1638.

Preservation of Milk Samples with Brilliant Green for Streptococcus and Abortus Examination

Brilliant green in a final dilution of 1 in 10,000 was found to preserve milk samples without change for at least twenty days. The dye inhibited the growth of bacteria responsible for the souring of untreated

samples. Its presence did not interfere with subsequent laboratory tests for mastitis (cultural, leucocyte count and catalase estimation) or for abortus infection (cultural and agglutination tests). This method of preserving the samples is efficient, convenient and economical and has been used in routine work for several years.

C. S. Bryan, *Am. J. Pub. Health*, 23: 1182 (Nov.), 1933.

Encephalitis as a Complication of Measles

Thirteen cases are recorded, of which six proved fatal. The encephalitis appeared to be a definite clinical entity. The onset was rather sudden, on about the fourth day after the appearance of the rash. Drowsiness or stupor or convulsions were the usual symptoms at onset. On examination, the child was usually comatose and showed slight fever and varying neurologic signs. On the basis of a remarkable consistency of the clinical picture and the pathologic changes, the author considers the condition as a clinical entity produced by some virus or organism.

M. G. Peterman and Max J. Fox, *Am. J. Dis. Child.*, 46: 512 (Sept.), 1933.

The Relation between Vitamin-A Metabolism and Susceptibility to Diphtheria Toxin

The feeding of increased amounts of vitamin A to guinea pigs did not increase the survival time after the injection of diphtheria toxin. However, vitamin assay of the livers of these animals showed that their vitamin-A stores had not been increased by giving them cod-liver oil.

Various diets were employed and it was found that regardless of these there was a high degree of correlation between the survival time and the amount of vitamin A stored in the liver.

Calvin C. Torrance, *Am. J. Hyg.*, 18: 355 (Sept.), 1933.

Immunization with Bacillus Pertussis Vaccine

Vaccine prepared from recently isolated strains has been employed for the immunization of 394 young non-immunes. Of these, 29 were exposed throughout the incubation, catarrhal and paroxysmal stages of whooping cough, but none contracted the disease. Active immunity is completed in four months and lasts for years. The best year for immunization is the second half-year of life. The vaccine is given in three weekly bilateral injections.

Louis W. Sauer, *J.A.M.A.*, 101: 1449 (Nov. 4), 1933.

Sustaining Membership

Pursuant to the changes in the By-laws of the Association establishing the basis of sustaining membership, the Executive Committee has pleasure in announcing the acceptance of this form of membership by

*The
London Life Insurance Company*

*The
Manufacturers Life Insurance
Company*

*The
Canada Life Assurance Company*

Through the adoption of this form of membership by various institutions and companies, the Association is enabled to extend its activities in the advancement of preventive medicine.

CANADIAN
PUBLIC HEALTH
ASSOCIATION

Keep up Momentum

WHEN you read that during many recent months, in spite of the financial depression, the Canadian people enjoyed better health and had a lower deathrate than ever before, you may wonder why. One outstanding reason is that our people were well prepared, physically, to resist sickness.

In past decades, millions of dollars were invested to prevent as well as to cure disease. They returned rich health dividends. The movement for healthier living conditions in all parts of the country had gained such momentum that temporary obstacles and difficulties failed to check it.

You know that the deathrate from tuberculosis has declined steadily. You know that smallpox, typhoid and diphtheria can be prevented. You hope to see the day when whooping cough, measles and scarlet fever will disappear, as yellow fever and cholera did—thanks to scientific preventive methods. Scientists are faithfully working day and night for these victories.

The lower deathrate is due in no small measure to the present efficiency of hospital and nursing services that have required years in which to

develop. In assuring pure water, safe milk, clean food, swept streets and proper sewerage systems your Health Departments did their part in making health records in 1932 and 1933.

Some of the forces upon which the health of people depends are financed by Dominion, Provincial and local appropriations. But many of the forces which have contributed so greatly to general welfare—the Red Cross, the Tuberculosis Associations, the Victorian Order of Nurses, the Canadian Committee for Mental Hygiene, the Canadian Social Hygiene Council, and others—are largely dependent upon private contributions.

Today the forward health movement has been slowed down in some localities because of reduced appropriations and smaller contributions. In certain other communities some of the official health work has stopped.

While the people of our country are working shoulder to shoulder, collectively and individually, to restore material prosperity, no greater tragedy could befall them than to sacrifice their greatest wealth—their health. If you would have increasing health and decreasing disease, keep up the power and the momentum of the health movement.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER,
PRESIDENT



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